

## Claims

What is claimed is:

[c1] A voltage sensor that measures voltage at a section of an integrated circuit, comprising:

- a voltage controlled oscillator disposed on the integrated circuit;
- a first counter stage disposed on the integrated circuit that counts a number of pulses generated by the voltage controlled oscillator; and
- a second counter stage disposed on the integrated circuit that counts a number of pulses on a clock signal, wherein a count of the first counter stage relative to an expected count represents an actual voltage at the section of the integrated circuit.

[c2] The voltage sensor of claim 1, further comprising:

- a finite state machine disposed on the integrated circuit that queries the count of the first counter stage when the second counter stage reaches a specified count.

[c3] A method for measuring voltage at a section of an integrated circuit, comprising:

- counting pulses generated by a voltage controlled oscillator;
- counting pulses on a clock signal; and
- comparing a count of pulses generated by the voltage controlled oscillator and a count of pulses on the clock signal to determine the voltage at the section of the integrated circuit.

[c4] The method of claim 3, further comprising:

- querying the count of the pulses generated by the voltage controlled oscillator when a specified count of pulses on the clock signal has been reached.

- [c5] The method of claim 4, further comprising:  
notifying a finite state machine when a specified count of pulses on the clock signal has been reached, where after the finite state machine queries the count of the pulses generated by the voltage controlled oscillator.
- [c6] The method of claim 3, wherein the voltage controlled oscillator operates at an expected voltage.
- [c7] The method of claim 6, wherein the queried count of pulses generated by the voltage controlled oscillator is compared to an expected count of pulses to determine an actual voltage, and wherein the expected count of pulses varies with the expected voltage.
- [c8] The method of claim 3, further comprising:  
resetting the count of the pulses generated by the voltage controlled oscillator once the count of the pulses generated by the voltage controlled oscillator has been queried.
- [c9] An integrated circuit having a voltage sensor that measures voltage at a section of the integrated circuit, the voltage sensor comprising:  
a voltage controlled oscillator disposed on the integrated circuit;  
a first counter stage disposed on the integrated circuit that counts a number of pulses generated by the voltage controlled oscillator; and  
a second counter stage disposed on the integrated circuit that counts a number of pulses on a clock signal, wherein a count of the first counter stage relative to an expected count is used to determine an actual voltage at the section of the integrated circuit.
- [c10] The integrated circuit of claim 9, further comprising:

a finite state machine disposed on the integrated circuit that queries the count of the first counter stage when the second counter stage reaches a specified count.